



TECHNICAL

A Data Access and Security Approach
OVERVIEW

Dr John Salerno
Broadsword Program Office
Air Force Research Laboratory / IFE
315-330-4429

Outline



- **Introduction**
- **Architecture**
 - **The “Gatekeeper”**
 - **The “Keymaster”**
 - **Client Services**
- **Towards the Future**
- **Summary**

Introduction



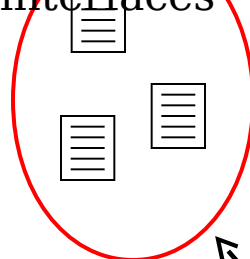
Goal: To provide a single, secure interface enabling access to information that can exist anywhere.

- Take advantage of internet technologies
 - Platform Independence
 - Access to any type/format
- Today - Stovepipe systems

Today's Environm ent

Published Documents

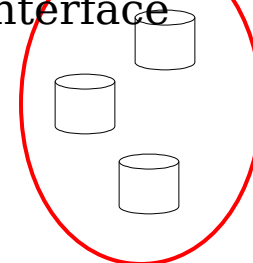
- Freely available
- Non-secured
- Standard interfaces



Internet Today

Database Systems

- Require Login/Password
- Secure
- Single user interface



Broadswor

- Single login/password

- Maintains security

Architecture

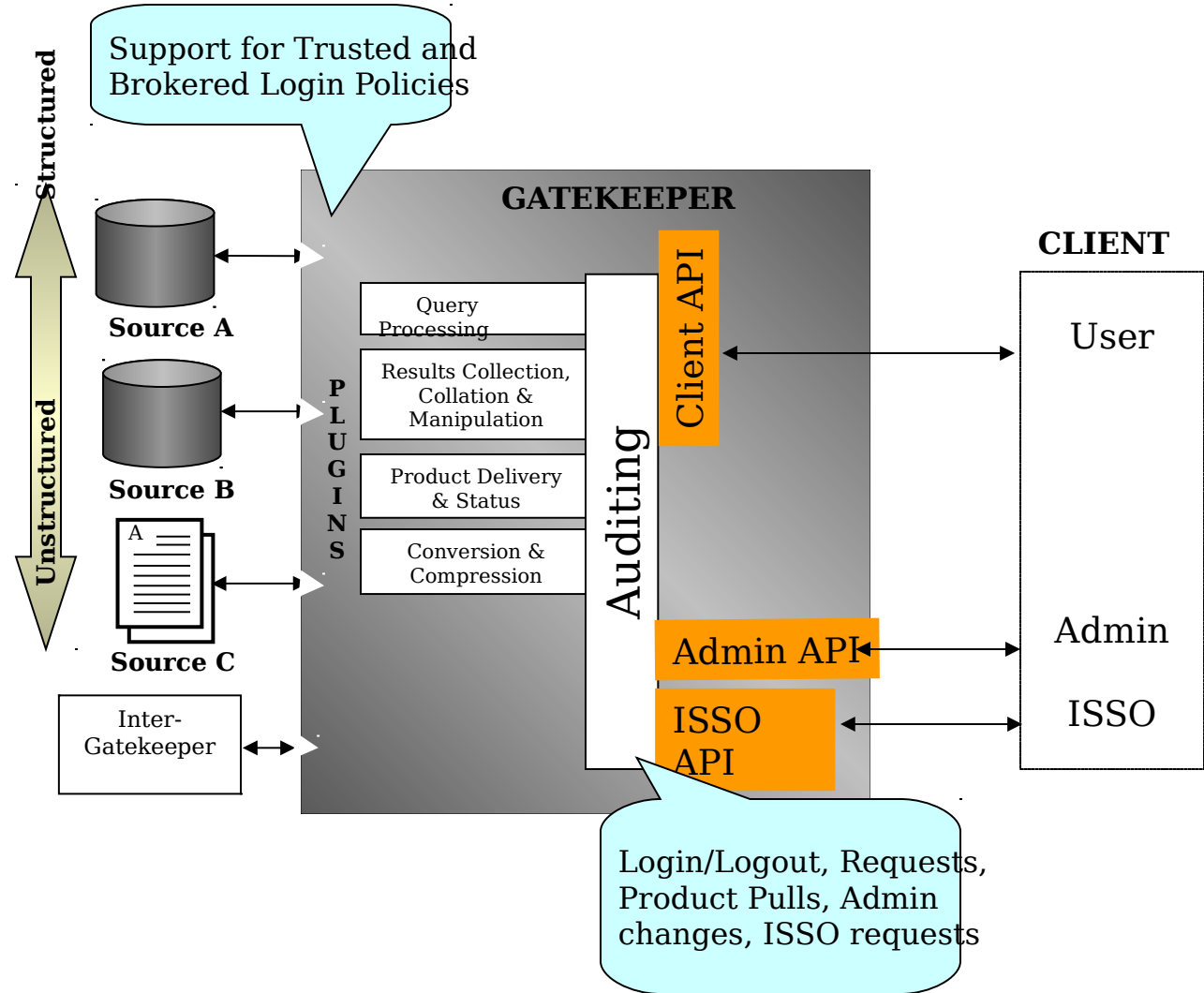


- Broadsword - 3
Products
- Gatekeeper
 - Keymaster
 - Client

Architecture



Gatekeeper



The “Gatekeeper”



- Single API to access multiple sources of information
 - Both structured and **unstructured**
 - Retrieve elements, reports and products
 - Access to Imagery, Video, Audio and Text Products
- Thin Layer of Code
 - Audit all user requests and accesses
 - Route request to appropriate sources
 - Join all responses
- Interface to specific sources performed by plug-ins

The “Gatekeeper”



Plug-ins

- Identifies to the Gatekeeper what services are provided by the source, e.g., keyword, geography and query
- Converts the API request format (BNF) to the source interface requirements to include translations and transformations
- Blocks unsupported query elements

ENFORCES POLICY
PROTECTS SOURCE

The “Gatekeeper”



Available
Plug-ins

Source	Products/Reports Available	
AMHS	Messages	
AODB	Mission Simple Mission Deviation Tanker Escort Aircraft	AETACS Electronic Combat ABP/ATO History ABP/ATO Apportionment
CSIL	LandSat, Spot Commercial Imagery (Thumbnails)	
5D	Imagery (Thumbnails)	
IESS	History of Coverage Imagery Interpretation Reports Standing Requirements Target Details Imagery if collocated with an IDEX	
Intelink Hydra	HTML Products	
Intelink MetaSearch	HTML Products	
IPL & IPA	Imagery (Thumbnails), Video, Documents, Multi-File Support	
MEPED	Overview Using Country Aliases	POC Producing Country Associated Systems

The “Gatekeeper”



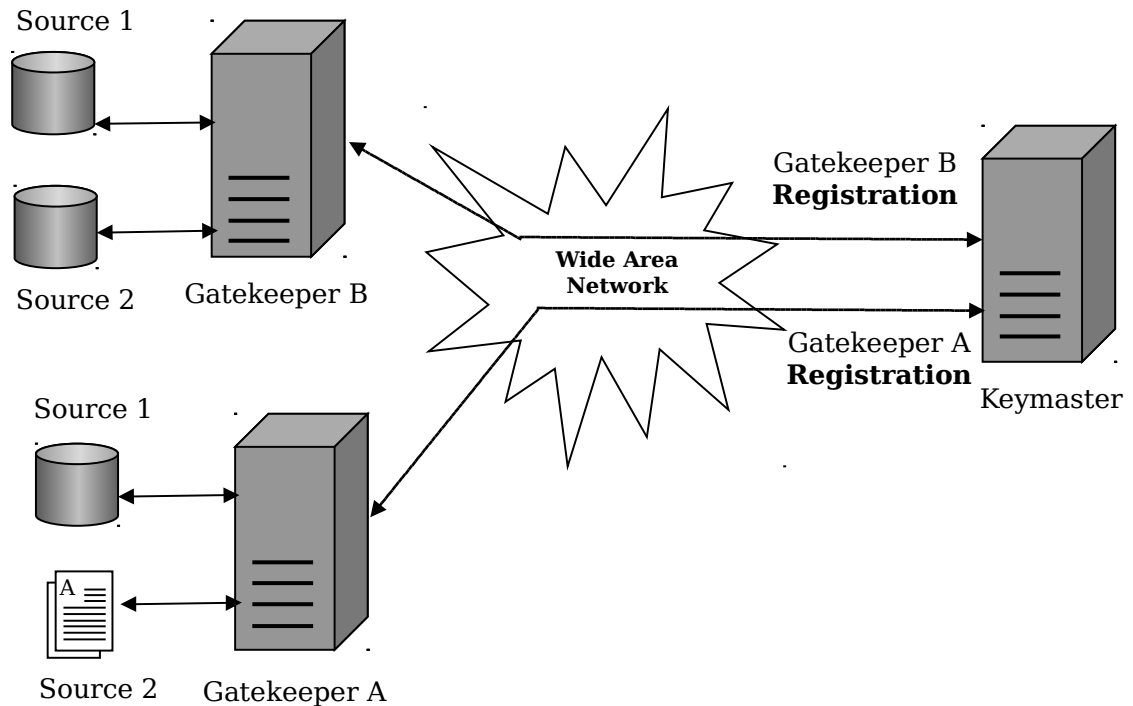
Available
Plug-ins

Source	Products/Reports Available	
MIDB	Facility Location List by Country and Category with Remarks Facilities with Associated Units on Equipment, Facility Equipment, Facility Remarks Facility Listing BE Number/Category Sort, Facilities with Associated Units, Equipment, and Remarks Facility Location List by Country and Category Equipment On-Hand Quantities by Facility and Unit Name Equipment List by Force and Primary Function Active GOB Related Facilities by Category Facility Location List with Vulnerabilities and Remarks Defensive Missile Order of Battle Target Materials Planning Document Target Nomination List Combined Target List	
NDS	Order IDEX Imagery Only	
Space DB	DIS Order of Battle & Support Space-Log Space Launch System Battle	Launch Mission Space Order Of
Weather	Satellite Images	

Architecture



Inter-Gatekeeper



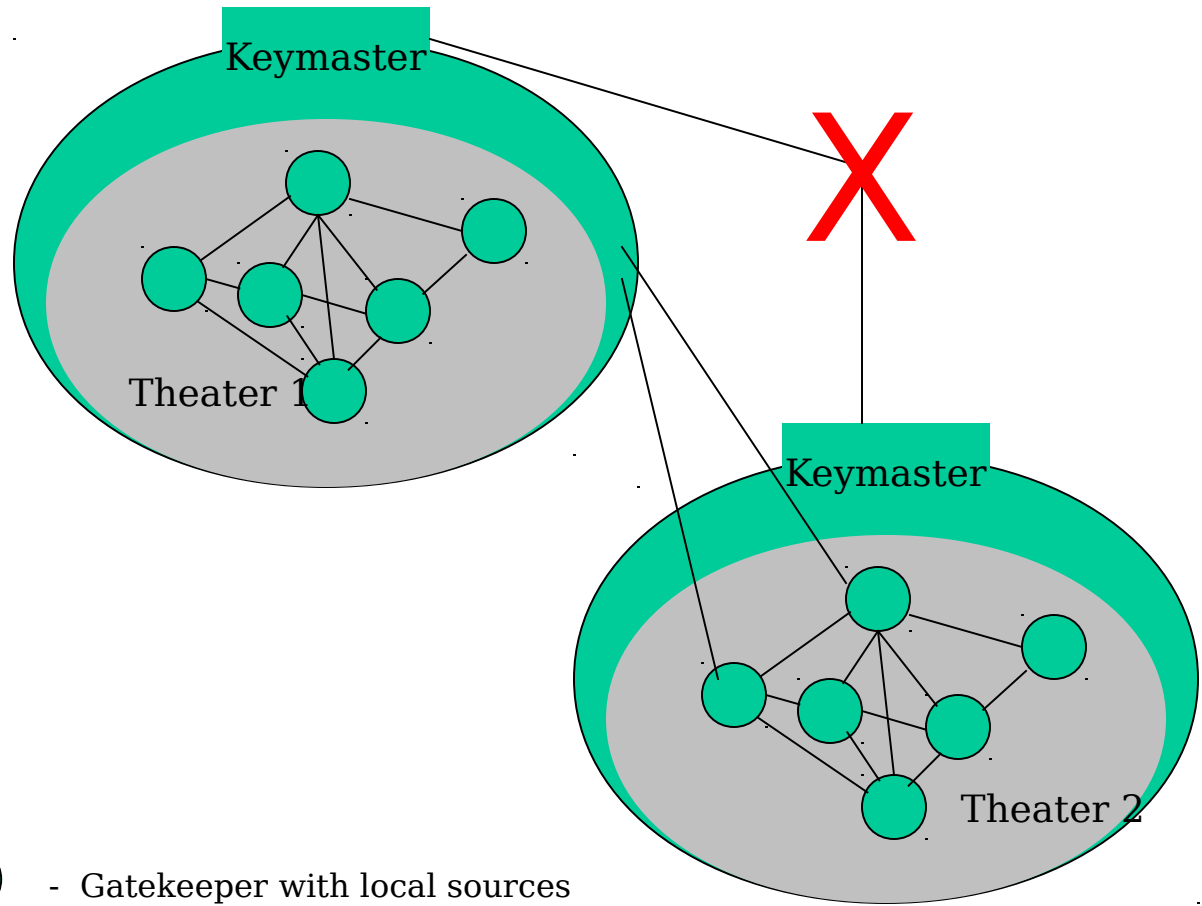
- Each Gatekeeper registers with the **Keymaster** for remote c
- **Keymaster** distributes global maps and updates
- Based on Digital Certificate Technology (X.509)

Architecture

e



Inter-
Gatekeeper



- Gatekeeper with local sources connected
- Sources can be published or not

The “Gatekeeper”

Security Features

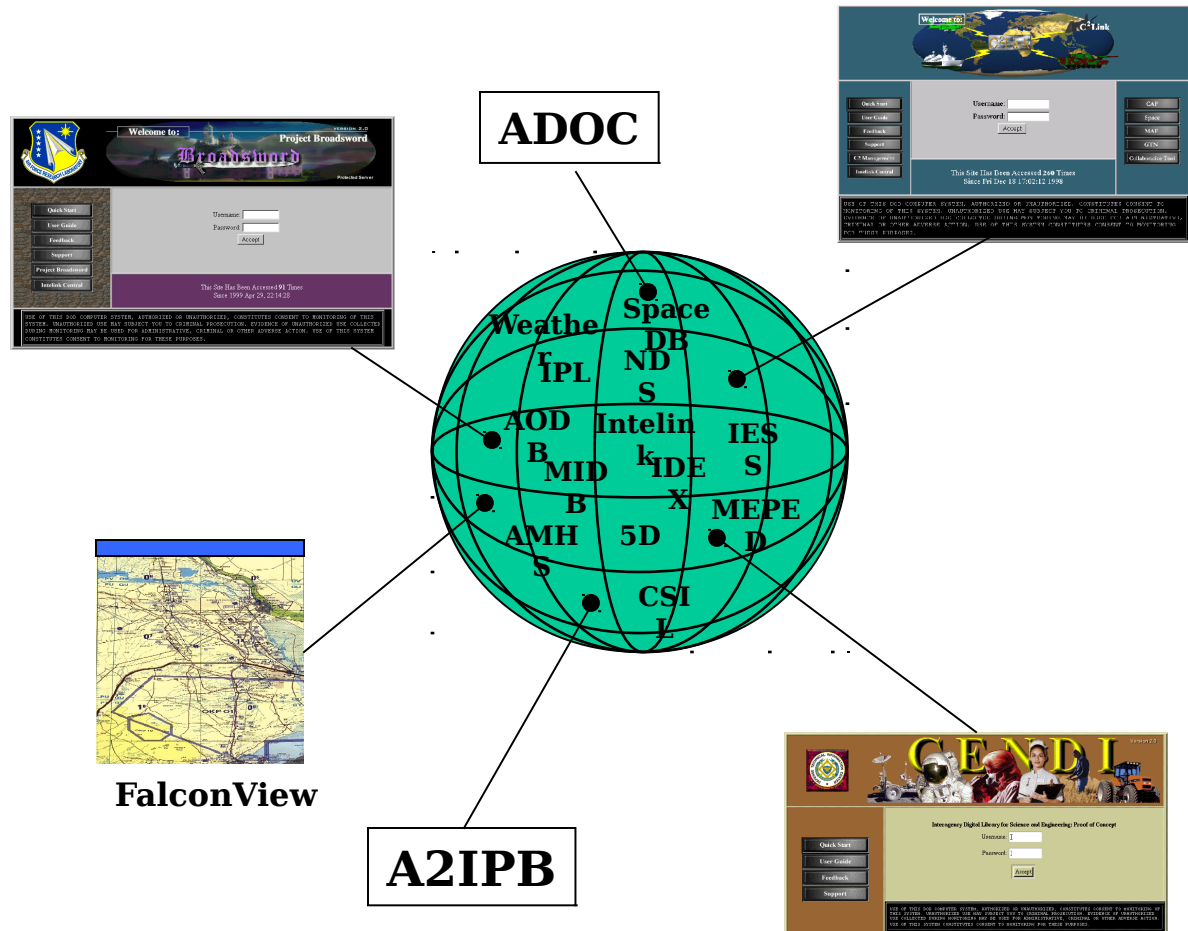
- Upon Successful Connection, the Gatekeeper provides:
 - What sources are available to the user
 - What privileges the user has
- For each source:
 - What elements are available from the source
 - Whether the elements are queriable or not returnable

Federated Schema
vs
Information Navigational Keys

Architecture



Data Access & Security

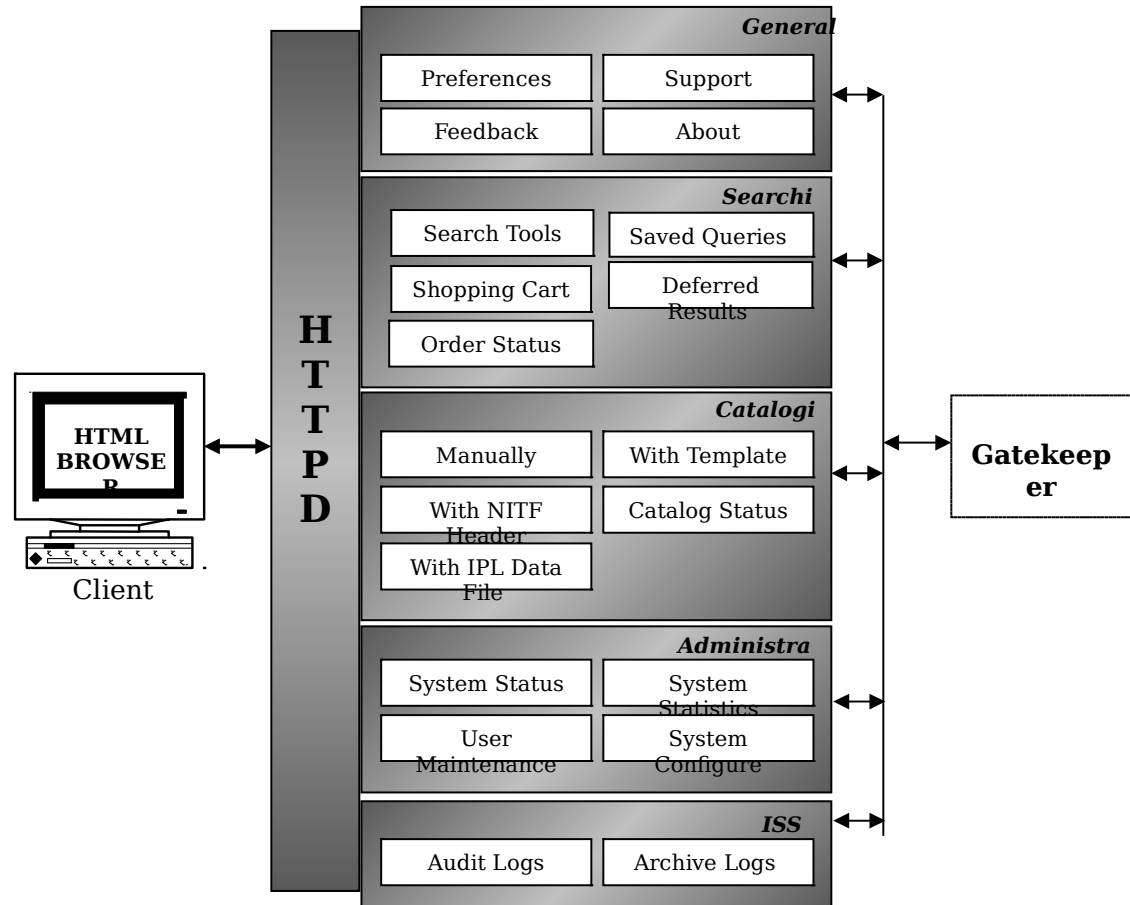


Architecture

e



User
Interface



Client Services



Preferences

PREFERENCES

General

Info Support

Delivery Options

Search Tools

Results Page

Remote User Data

Sources Requiring a Separate Username & Password

IPL20@sun.bswd

Username:

Password:

Required for: querying, products

Apply Changes

Number of hits displayed (in List) each time:

Maximum number of hits returned from each selected source:

Display Thumbnails: ☒ Yes ☐ No

Display Results as: ☒ List ☐ TimeLine ☐ Map

Attributes Selection

Sort Returned Hits by

LAYER: 1 2

As Is

Source

Equipment

Query Fields

Short Adv HitList

☐ ☐ ☐ [Airfield Load Class](#)

☐ ☐ ☐ [Airfield Pavement Type](#)

☐ ☐ ☐ [Allegiance](#)

☐ ☐ ☐ [Azimuth](#)

☐ ☐ ☐ [Capacity](#)

☐ ☐ ☒ [Country Designed](#)

PREFERENCES

Delivery Options

Search Tools

Results Page

Remote User Data

Where and What to Search

Where to Search

Order to Search

Types of Information Available

Search Via Neptune Baseline

Search Via Neptune via Neptune2.0

IPL 1.0 at Sun via Neptune

Imagery, Video, Audio, Documents

Imagery Only (Native Format NITF2.0)

Imagery, Video, Audio, Documents

Query Method: ☒ Simultaneous ☐ Sequential

Define Search Page

Choose which combination of features that should define your personal Search page.

☐ Find

☒ Query

☐ Geographic Search

☐ Geographic Search/Find

☐ Geographic Search/Query

Query Form Style: ☐ Short ☒ Advanced

Geographic Form Style: ☒ Text ☐ Map

Default Date Range in days:

User has control over where, what and how to search
Ability to store brokered logins

Searching



- ### 3 Basic Utilities
- Find
 - Query
 - Geographical

Find

Query Options: ☒ Case insensitive ☒ Keywords match on word boundaries

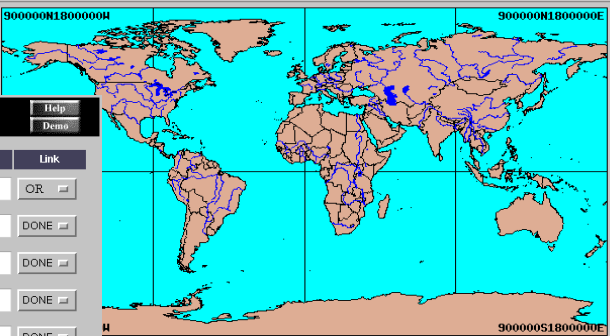
Enter Keyword(s):

SEARCH TOOLS

Query (Advanced Form)

Attributes	Comparison Operator	Value	Link
<input type="button" value="Product-Security Classification"/>	<input type="button" value="="/>	<input type="text" value="U"/>	<input type="button" value="OR"/>
<input type="button" value="Product-Format"/>	<input type="button" value="="/>	<input type="text" value="TIFF6.0"/>	<input type="button" value="DONE"/>
<input type="button" value="NO SELECTION"/>	<input type="button" value="="/>	<input type="text" value=""/>	<input type="button" value="DONE"/>
<input type="button" value="NO SELECTION"/>	<input type="button" value="="/>	<input type="text" value=""/>	<input type="button" value="DONE"/>
<input type="button" value="NO SELECTION"/>	<input type="button" value="="/>	<input type="text" value=""/>	<input type="button" value="DONE"/>
<input type="button" value="NO SELECTION"/>	<input type="button" value="="/>	<input type="text" value=""/>	<input type="button" value="DONE"/>

Geographic Search (Map)



◀
▶

Date Range

Start Date	End Date
<input type="text" value="YYYYMMDDhhmmss"/>	<input type="text" value="YYYYMMDDhhmmss"/>

Map Search Options:

File(s) to be Searched:

Select a Search Type:

☒ Target
☐ Image
☐ Both

☒ Point
☐ Circle
☐ Polygon

Searching



Utilities
Supported



Source	Find	Geographic Search			Query
		Point	Circle	Polygon	
IPL v2.0	N/A	✓	✓	✓	✓
IPL v1.0	✓	✓	✓	✓	✓
IPA 1.2.3	✓	✓	✓	✓	✓
5D v4.0.4	N/A	✓	✓	✓	✓
		TGT Only	TGT Only	TGT Only	
MIDB v2.0.1	N/A	✓	✓	✓	✓
		TGT Only	TGT Only	TGT Only	
AMHS v2.3.1	✓	✓	N/A	N/A	✓
		TGT Only			
IESS 3.0	N/A	✓	✓	✓	✓
NDS	N/A	✓	✓	✓	✓
		IMG Only	IMG Only	IMG Only	
CSIL	N/A	✓	N/A	✓	✓
		IMG Only		IMG Only Rectangle	
MEPED	✓*	N/A	N/A	N/A	✓*
Space DB	✓	N/A	N/A	✓	✓
				TGT Only	
Intelink Hydr	✓	N/A	N/A	N/A	✓
Intelink MetaSearch	✓	N/A	N/A	N/A	✓
AODB	N/A	N/A	N/A	N/A	✓
Weather	✓	N/A	N/A	N/A	✓

N/A - Utility Not Available
* - Equipment
Nomenclature

Searching



3 Basic Formats

- List
- Time Line
- Map

SEARCH TOOLS

QUERY: PRD.PRODFMT = "TIFF6.0"

Source	Query Status
TOTAL HITS	10
IPL 1.0 at Sun via	10 Hits

Product Details

Document ID: IPA_sun_30163659ZMay97_725033
 Security Classification: Unclassified
 Agency: root
 Publication Date: 19970530123554
 Format: Image: TIFF 6.0 (.tif)
 Product Size: 263,004 Bytes
 Product Short Name: ANIMG
 Title: IPLtest2
 Post Date: 19970530163659
 Number Of Thumbnails: 1

Image Details

Compression Generation: 0
 Image Compression: Not Compressed
 Image Number: 1

SEARCH TOOLS

QUERY: PRD.PRODFMT = "TIFF6.0"

Source	Query Status
TOTAL HITS	10
IPL 1.0 at Sun via	10 Hits

1997	1998	1999
<input type="checkbox"/> (U)IPLtest [IPL 1.0 at Sun via Neptune] Display Details		<input type="checkbox"/> (U)cattest_3311 [IPL 1.0 at Sun via Neptune] Display Details
<input type="checkbox"/> (U)IPLtest2 [IPL 1.0 at Sun via Neptune] 		<input type="checkbox"/> (U)cattest_3316 [IPL 1.0 at Sun via Neptune]

19970530123400 - 19990331194859

Enter Desired Time Window

Begin: YYYYMMDDhhmmss End: YYYYMMDDhhmmss

Zoom: [Current: Years]

SEARCH TOOLS

Results of Request

QUERY: PRD.PRODFMT = "TIFF6.0"

Source	Query Status

Zoom

Some sources don't provide times and/or location
 Products versus reports

Searching



- Shopping Cart Bin
- Edit Individual Attributes
- Edit Group Attributes



Support for product delivery varies
Support for product delivery and
information required for delivery
highly source dependent

Searching



Order Status



ORDER STATUS

Order Status Reports

Category	Success	Failed	Pending	Total
Totals	0	0	2	2
IPL	0	0	2	2
Archived				0

☐ (1)

REQUEST ID: 29155658ZMar99.000000212152199055169007000010000000094

Filename: testab.IPA_sun_30163659ZMay97_725033.TIFF6.0

Source: IPL 1.0 at Sun via Neptune (IPL)

Request Date: 19990329155658

Status	Pending
Message	Request accepted
Report Date	19990329162108
Destination Account	testab
Destination Address	neptune
Destination Path	pulls

☐ (2)

REQUEST ID: 29155707ZMar99.000000212152199055169007000020000000094

Filename: testab.IPA_sun_30130804ZJul97_258061.TIFF6.0

Source: IPL 1.0 at Sun via Neptune (IPL)

Request Date: 19990329155707

Status	Pending
Message	Request accepted
Report Date	19990329162108
Destination Account	testab
Destination Address	neptune
Destination Path	pulls

Saved Queries



Management

- Main Page
- Edit E-Mail
- Edit Batch

SAVED QUERIES

Help

Saved Queries

Select	Name	E-Mail Profile	Batch Profile	Actions
<input type="checkbox"/>	tank query	Active	1623 Apr 02 1999	<div>Execute</div> <div>Load</div> <div>Remove Batch</div>

Edit E-Mail Profile

Edit Batch Profile

Delete Marked Items

SAVED QUERIES

Edit Batch Profile

Query Name: tank query

Query: KEY.KEYWORD = "tank"

Schedule Time/Date

16

Hr

17

Min

Mar

29

1999

E-Mail Address

E-Mail Suppression

No

Query Method

☒ Simultaneous
 ☐ Sequential

Sources to Search

☐ IPA 1.2.3 at Moon Via Neptune Baseline

☐ 5D at Neptune via Neptune2.0

☐ IPL 1.0 at Sun via Neptune

Order to Search

Save

Save & Schedule

Cancel

SAVED QUERIES

Edit E-mail Profile

Help

Demo

Query Name: tank query

Query: KEY.KEYWORD = "tank"

E-Mail Address

Update Frequency

☒ Every: 30 minutes
 ☐ All Day

☐ Every: 30 minutes between 0000 and 0000

☐ Daily At: 00 Hr 00 Min

Duration

Indefinite

E-Mail Suppression

On Zero Hits

Status

Active

Save

Cancel

Push vs Pull
Security
Bandwidth

Catalog



Overview

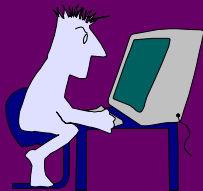


- Support for IPL Products Only
- Catalog Support
 - Manual Input
 - Parse NITF Products
 - Using IPL Data Files
 - Creating/Storing Templates
- Use of “INPUT” Tag to get file (Browse)
- Status of Product Ingestion

Administration



Overview



- System Status
 - Daemon Management
 - Setting Debug Flags
 - Queue Maintenance
 - Log Maintenance
- User Maintenance
- System Statistics
 - Batch Jobs
 - Gatekeeper
 - Web Server
- System Configuration
 - Data Element Configuration
 - Reset System Parameters
 - Gatekeeper Configuration
 - Backside Sources (Local Plug-ins)
 - Connected Sites (Remote Gatekeepers)
 - Register Gatekeeper
 - Add Map Data

Administration



System

- Daemon Status
- Set Debug Flags
- Queue Maintenance
- Sys/Log Info



SYSTEM STATUS

[Daemon Status](#)
[Set Debug Flags](#)
[Queue Maintenance](#)
[Sys/Log Info](#)

Set Debug Flags [Help](#)

Debug	Flag Name
<input type="checkbox"/>	Auto-Log
<input type="checkbox"/>	BNF
<input type="checkbox"/>	Comm
<input type="checkbox"/>	Config
<input type="checkbox"/>	Connect
<input type="checkbox"/>	CleanUp
<input type="checkbox"/>	Catalog
<input type="checkbox"/>	Cart
<input type="checkbox"/>	EMN
<input type="checkbox"/>	HitList
<input type="checkbox"/>	IssoMaint
<input type="checkbox"/>	Login
<input type="checkbox"/>	Full
<input type="checkbox"/>	Qry
<input type="checkbox"/>	Registered
<input type="checkbox"/>	Scrn
<input type="checkbox"/>	Server
<input type="checkbox"/>	SezMngr
<input type="checkbox"/>	UserAdmin

SYSTEM STATUS

[Daemon Status](#)
[Set Debug Flags](#)
[Queue Maintenance](#)
[Sys/Log Info](#)

Queue Maintenance [Help](#)

Queue ID	Access Modes	Owner	Current Bytes	Current # of Messages	Max Bytes	Last Pid to Send	Last Pid to Receive
1	rw-rw-rw-	root	0	0	4096	2022	2161

[Update Display](#)
[Pop Message](#)

SYSTEM STATUS

[Daemon Status](#)
[Set Debug Flags](#)
[Queue Maintenance](#)
[Sys/Log Info](#)

System and Log Info

[Help](#)

more log files, select the log files to be purged and press the "Purge Log Files" button located in the table immediately above the button bar for information on disk usage for the file system on which

Select	Log File	Size in Bytes
<input type="checkbox"/>	access_P.log	37,583
<input type="checkbox"/>	error_P.log	568
<input type="checkbox"/>	conan.log	4,227
<input type="checkbox"/>	jivacronlog	13,034

File System	Total Kilobytes	Used	Available	Capacity
/opt/bswd2.0/client	3,946,496	339,968	3,606,528	8.6%

[Purge Log Files](#)

SYSTEM STATUS

[Daemon Status](#)
[Set Debug Flags](#)
[Queue Maintenance](#)
[Sys/Log Info](#)

Daemon Status

[Help](#)

Daemon Name	Process ID	Status
conan	4625	running
gatekeeper	1613	running
gatekeeperfp	1618	running
gatekeeperms	1623	running
gatekeepermsl	1631	running
jivacron	1637	running
ipl_plugin	1644	running
5d_plugin	1651	running
dhc_plugin	n/a	not running
doe_plugin	n/a	not running
de_plugin	n/a	not running
doerd_plugin	n/a	not running

[Update Display](#)

ISSO



Services



- Audit Logs
 - Create Audit Report based on:
 - User Name
 - Event Type
 - Date Range
 - Archive Audit Logs
 - Remove Audit Reports
- Archived Logs
 - Query Archived Logs based on:
 - User Name
 - Event Type
 - Date Range

ISSO



Management

- Audit Logs
- Archived Logs

Audit Logs

Audit Log Maintenance Help

User :

Start Date :

YYYYMMDDhhmmss
19990603193415

End Date :

YYYYMMDDhhmmss
19990603193415

Event :

All Events ▼

Archive File Name :

Audit Report

Archive Record

Archived Logs

SELECT	ARCHIVE FILE	DATE ARCHIVED
<input type="checkbox"/>	brians	19990527150310

Audit Archive Queries Help

User :

Start Date :

YYYYMMDDhhmmss
19990603200710

End Date :

YYYYMMDDhhmmss
19990603200710

Event :

All Events ▼

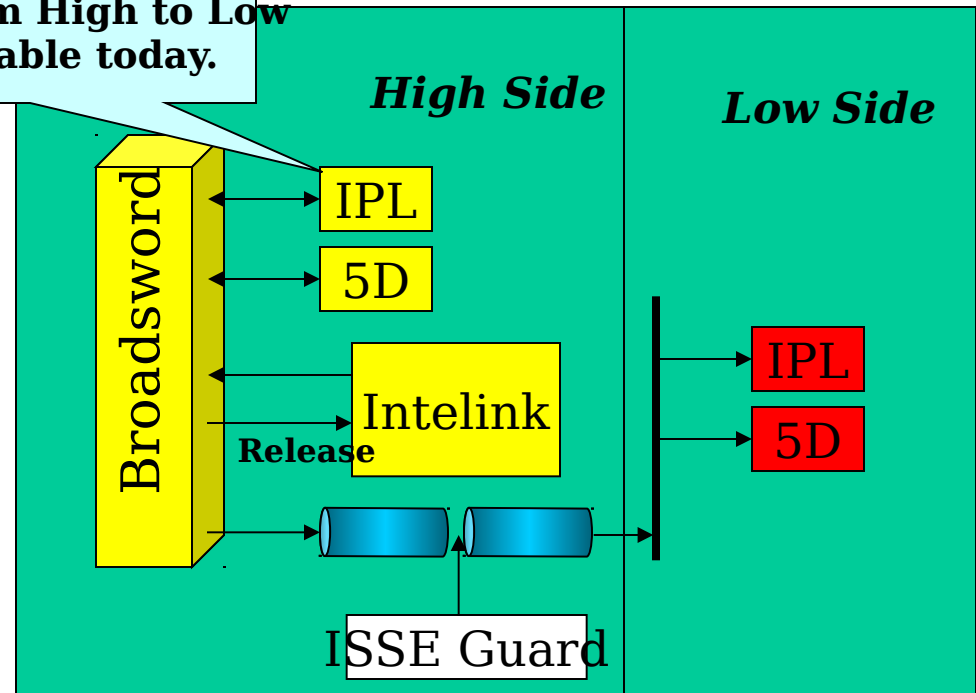
Query Archives

Future Activities



High - Low
Side
Production

IPL Catalog from High to Low side is available today.



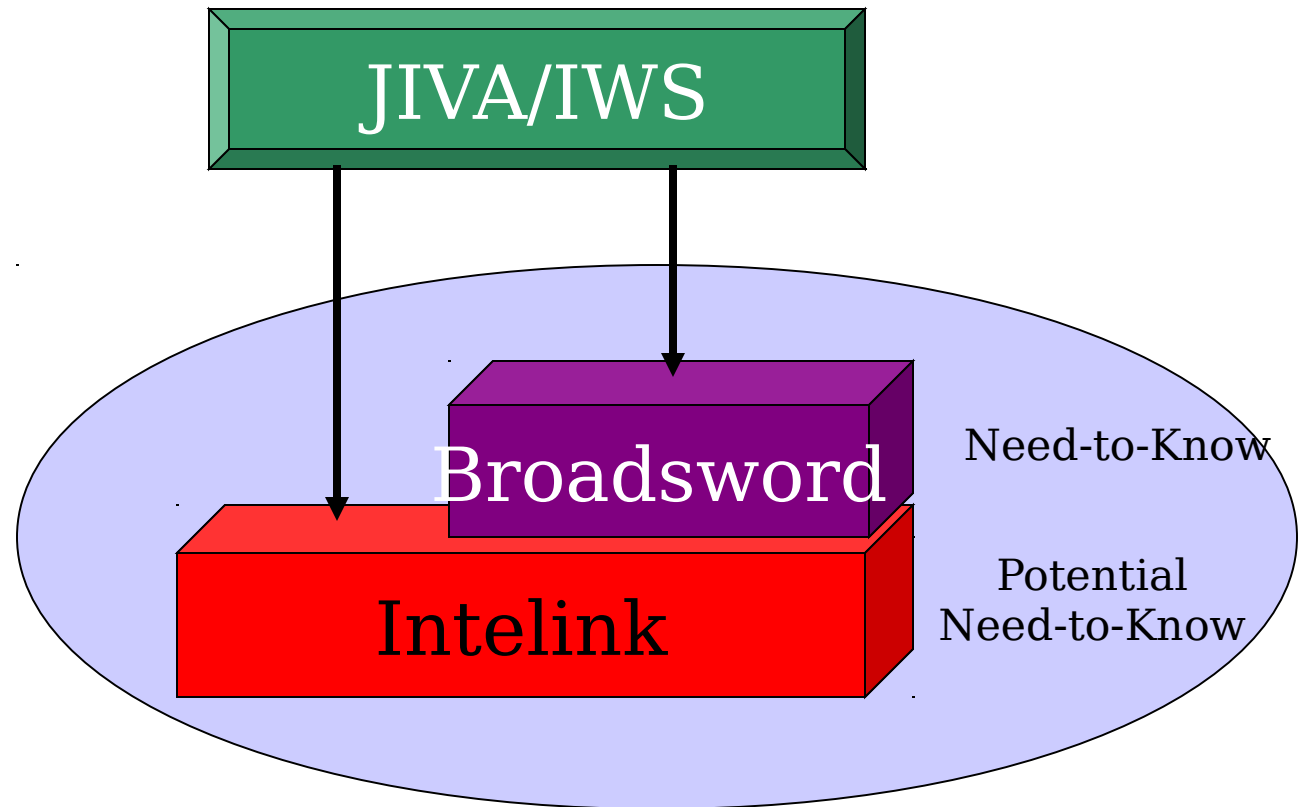
Product Transfer

IPL/5D NITF2.0 Products from High - Low via ISSE
Basis for Trusted Transfer Agent (TTA)

Product Conversion/Publish (NIMA)

Image Products converted to flat HTML/XML pages
on Intelink

The Problem



In a collaborative session user must be ensured that all participants have a Need to Know

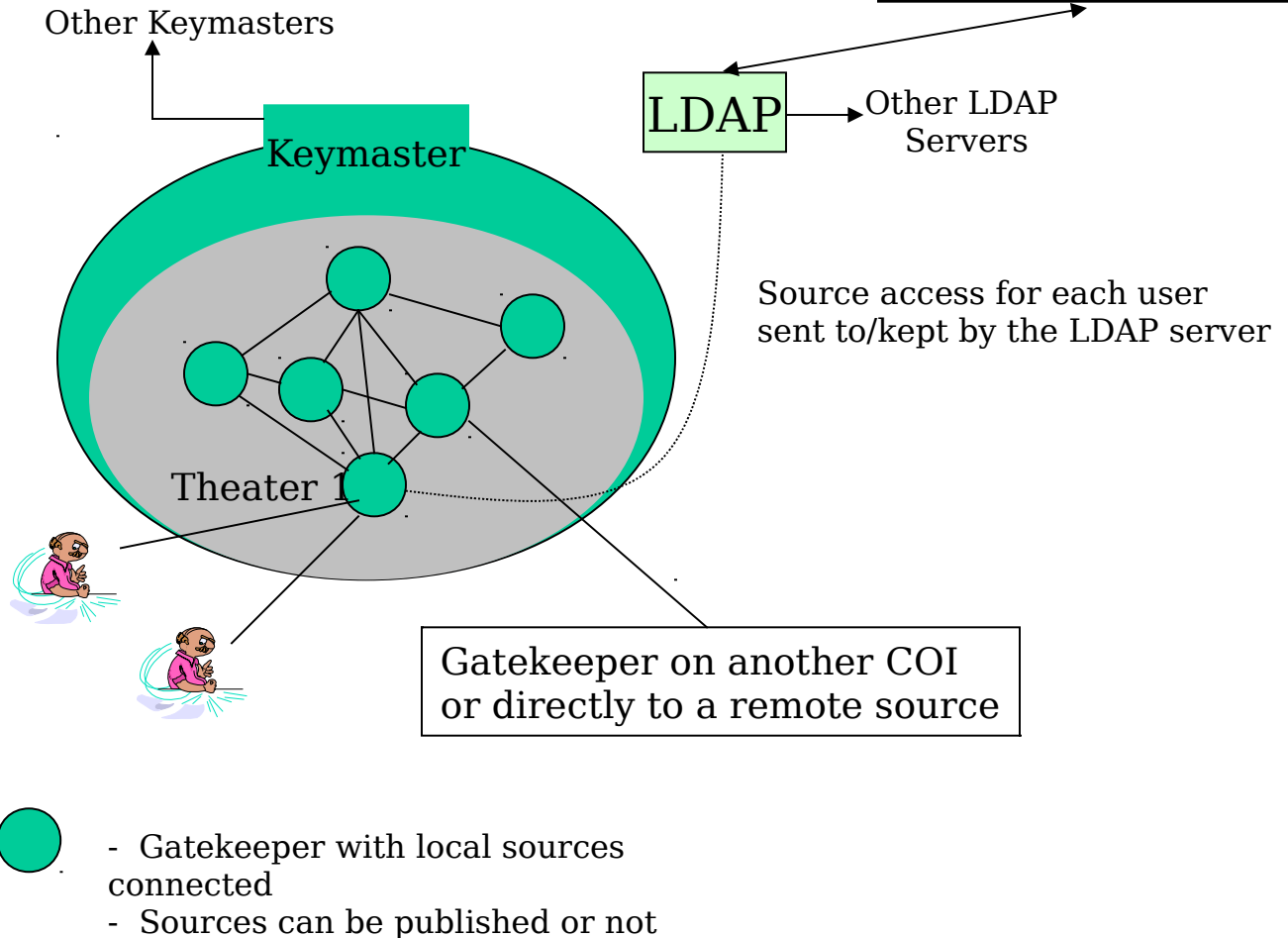
Future Activities



Protecting the Need-to-Know

Uses userid + access per user to determine common Need-to-Know for session (as users come in/out of session).

Collaborative Tool

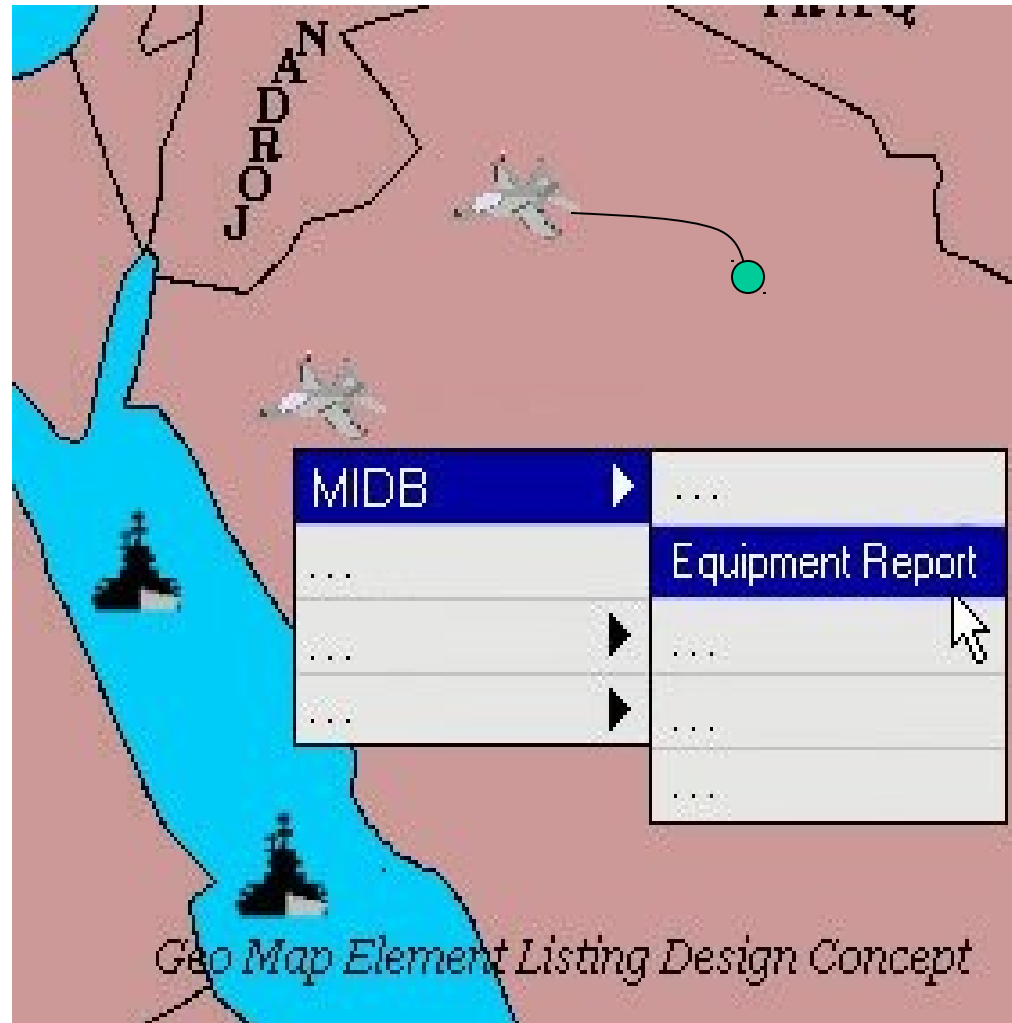


Version 2.1



Quicker Access to Reports and Products

Support for Dynamic Sources



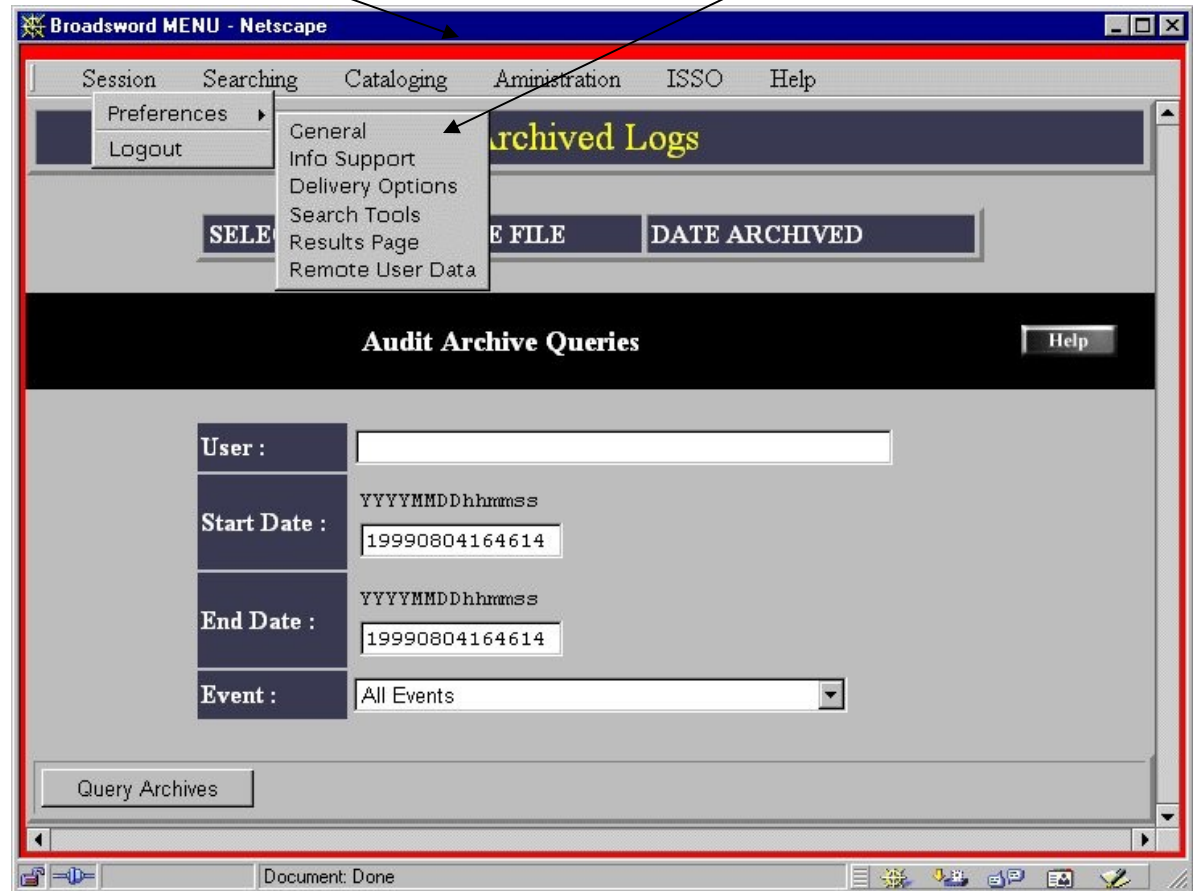
Version
2.1



Screen
Real Estate

Window labels

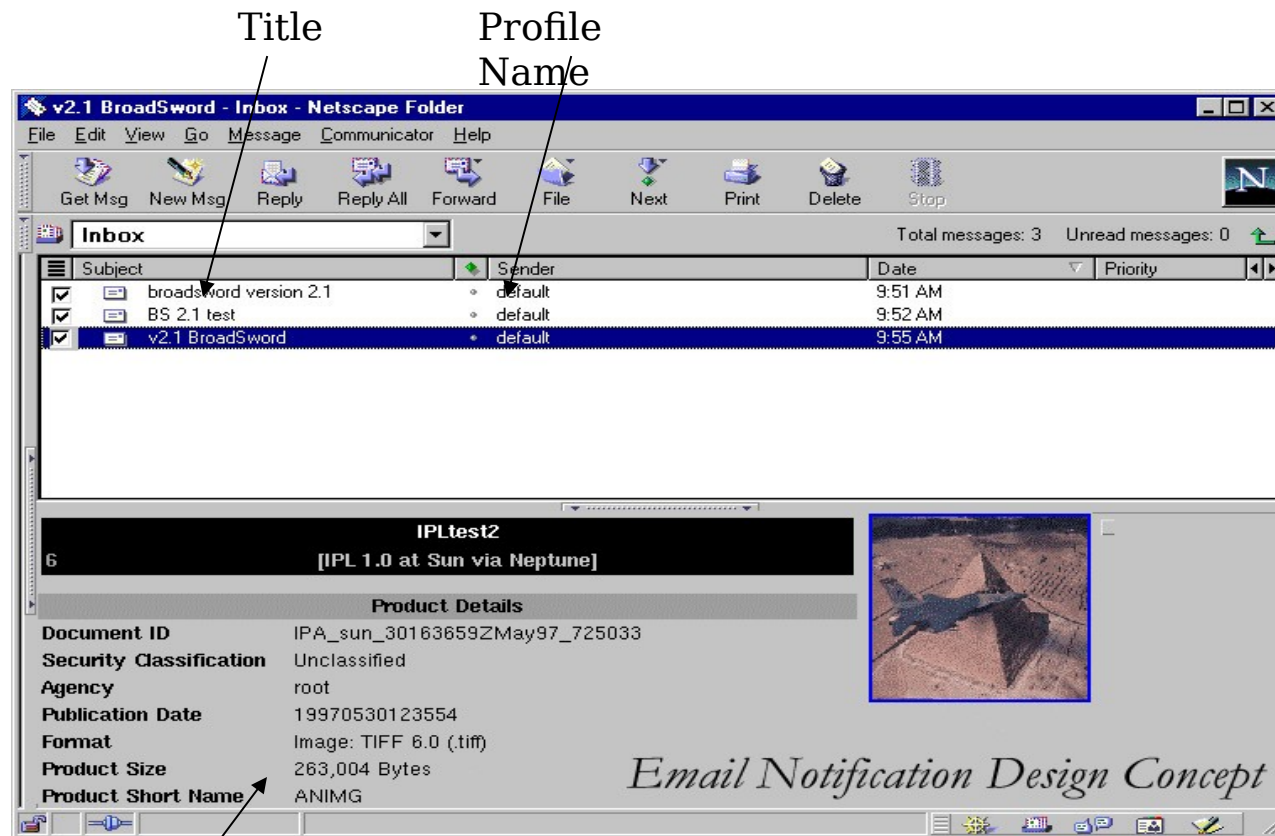
Popdown, cascading menus



Version 2.1



Easier/Quicker
Access to Alerts



Meta Data

Summary



Broadsword Version 2.0 provides both the users and developers with significant capabilities

Access to Information

Changing the way we work

Implementable within today's environment

It is here NOW!